

CLASS 11

CHEMISTRY

EXTRA QUESTIONS

Class 11 Chemistry Chapter 1 Some Basic Concepts of Chemistry – Extra Questions with Answers

Extra practice questions for Class 11 Chemistry Chapter 1 (Some Basic Concepts of Chemistry), beyond the textbook. These Class 11 Chemistry Chapter 1 important questions are handy for last-minute exam practice.

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- Short Answer Questions (2–3 marks)
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Extra practice questions for Class 11 Chemistry Chapter 1 (Some Basic Concepts of Chemistry), beyond the textbook. These Class 11 Chemistry Chapter 1 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. What is Avogadro's number?

Ans: 6.022×10^{23} .

Q2. Define molarity.

Ans: Number of moles of solute dissolved per litre of solution.

Q3. What is the SI unit of amount of substance?

Ans: Mole (mol).

Q4. State the law of multiple proportions.

Ans: When two elements combine to form more than one compound, the masses of one element that combine with a fixed mass of the other bear a simple whole-number ratio.

Q5. What is empirical formula?

Ans: The simplest whole-number ratio of atoms of each element in a compound.

Short Answer Questions (2–3 marks)

Q6. Calculate the number of moles in 22 g of CO_2 (molar mass = 44 g/mol).

Ans: $n = \text{mass} / \text{molar mass} = 22 / 44 = 0.5 \text{ mol}$.

Q7. Find the molarity of a solution containing 4 g NaOH (molar mass=40 g/mol) dissolved in 500 mL of solution.

Ans: Moles = $4 / 40 = 0.1 \text{ mol}$. Volume = 0.5 L. $M = 0.1 / 0.5 = 0.2 \text{ mol/L}$.

Q8. Calculate the mass percentage of water in a solution containing 20 g of salt in 180 g of water.

Ans: Total mass = 200 g. Mass % of water = $(180 / 200) \times 100 = 90\%$.

Higher-Order Thinking / Application Questions

Q9. In the reaction $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$, if 2 mol N_2 reacts with 3 mol H_2 , identify the limiting reagent and calculate the moles of NH_3 formed, explaining your reasoning.

Ans: From the balanced equation, 1 mol N_2 requires 3 mol H_2 . For 2 mol N_2 , we would need 6 mol H_2 , but only 3 mol H_2 is available. So H_2 is the limiting reagent (it runs out first). Using H_2 as the basis: 3 mol H_2 produces $(2/3) \times 3 = 2 \text{ mol NH}_3$ (since 3 mol H_2 gives 2 mol NH_3 per the equation's ratio). So only 2 mol NH_3 is formed, and $2 - 1 = 1 \text{ mol}$ of N_2 remains unreacted (since only 1 mol N_2 was actually consumed, using 3 mol H_2).

Q10. A compound contains 40% carbon, 6.7% hydrogen, and 53.3% oxygen by mass. Determine its empirical formula (atomic masses: C=12, H=1, O=16), showing your working.

Ans: Assume 100 g sample: C=40 g, H=6.7 g, O=53.3 g. Moles: C = $40 / 12 = 3.33$; H = $6.7 / 1 = 6.7$; O = $53.3 / 16 = 3.33$. Divide by smallest (3.33): C=1, H = $2.01 \approx 2$, O=1. Empirical formula = CH_2O . This matches formaldehyde/its polymers, illustrating how mass percentage data is converted to mole ratios and then simplified to the smallest whole-number ratio to determine empirical formula.

Class 11 Chemistry Chapter 1 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Chemistry Chapter 1 Solutions](#) and [Class 11 Chemistry Chapter 1 Revision Notes](#).

See also: [Chapter 1](#)

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